

New tiger moth taxa from Eurasia

(Lepidoptera, Arctiidae)

by

VLADIMIR V. DUBATOLOV

received 18.VI.2007

Abstract: Based on the structure of the ♂ genitalia and on wing pattern, several new subspecies of tiger-moths are described: *Epicallia villica transuralica* **subspec. nov.** from South Transuralia, Russia, *Eucharia festiva karabagha* **subspec. nov.** from the border between Armenia and Azerbaijan, *Holoarctia puengeleri iremelica* **subspec. nov.** from the South Ural Mts., Russia, *H. p. sibirica* **subspec. nov.** from North-Eastern Siberia and Alaska, *Grammia quenseli saura* **subspec. nov.** from the Saur and Tarbagatai Mts. in Eastern Kazakhstan, *Diacrisia sannio armeniaca* **subspec. nov.** from Armenia, *Spilarctia lutea adzhariacasubspec. nov.* from Western Georgia and Abkhazia, *Lemyra murzinorum* **spec. nov.** from Sichuan, China, and *Murzinoria gracilis* **gen. et spec. nov.** from Gansu, China.

While studying geographical variability within the ♂ genitalia of tiger-moths, new subspecies of *Epicallia villica* (LINNAEUS, 1758) and *Diacrisia sannio* (LINNAEUS, 1758) were discovered from peripheral parts of their range. Moreover, new subspecies of *Eucharia festiva* (HUFNAGEL, 1766), *Holoarctia puengeleri* (O.BANG-HAAS, 1927), and *Spilarctia lutea* (HUFNAGEL, 1766), were isolated from differences in their wing pattern. In addition, two new species were collected by SERGEI V. MURZIN (Moscow, Russia) in China. Descriptions of these new taxa of Eurasian tiger-moths are given below. The whereabouts of each holotype is also listed. The Museum WITT (München, Germany) is abbreviated as CMWM, the Zoological Institute (St.-Petersburg, Russia) as ZIN, and the Siberian Zoological Museum at the Institute of Animal Systematics and Ecology, Novosibirsk, Russia as SZMN.

Epicallia villica transuralica **subspec. nov.** (colour plate 17: 1-2)

Material: Holotype ♂, RUSSIA, Kurgan Province, 5 km SW from Kurgan, Ketovo, collected at light, 23-50 PM – 2 AM, 14.VI.1983, N. UTKIN leg. Preserved in SZMN. Paratypes: 5 ♂♂, the same locality and collector; 13-14.VI.1983, 1 ♀, the same locality and collector; 7.VII.1985.

Description: Forewing length 25-27 mm in ♂, 24 mm in ♀. The new subspecies has no obvious characters in its wing pattern which differs from the nominotypical subspecies.

♂ genitalia: (fig. 1): The main diagnostic character of the new subspecies is characterised by a very short and broad apical valva process, which is about twice the length of its width at the base. In the nominotypical subspecies (fig. 2), as well as in the Mediterranean one, *E. v. angelica* (Boisduval, 1829) (fig. 3), this process is 3-5 times longer than its width at base. In *E. v. britannica* (Oberthür, 1911) (fig. 4), *bona* **subspec.**, the apical valva process is about three times longer than its width at the base, and is also slightly curved inwards near the apex.

Remarks: Specimens from the South Ural Mts. (Chelyabinsk Province, Russia) appear to be transitional to the new subspecies, with the apical valva process three times longer than its width at the base.

Eucharia festiva karabagha **subspec. nov.** (colour plate 17: 3-4)

Material: Holotype ♀, the Azerbaijan/Armenia disputed territory, Karabagh, Jurdi 4 (ex coll. Greate Duke NIKOLAI MIKHAILOVICH). Preserved in ZIN. Paratypes: 4 ♀♀, with the same data.

Description: Only ♀♀ are known. Forewing length 20-24 mm. A strongly melanistic subspecies. The forewings are almost black, and only one ♀ had a few narrow yellowish bands; two were subbasal, at the postmedial and submarginal, the subbasal bands being the widest. The ground colour of the hindwings is rose-red, with a wide black medial band, two large submarginal spots, and a narrow marginal line.

Remarks: Most similar to *E. f. arafati* DE FREINA, 1997, which is also a subspecies with strongly melanistic ♀♀. However, the largest band on the forewings is different in both subspecies; subbasal in the new subspecies and submarginal in *E. f. arafati* DE FREINA. Moreover, the hindwing ground colour is rose-red in the new subspecies and bright red in *E. f. arafati* DE FREINA.

Holoarctia puengeleri iremelica **subspec. nov.** (colour plate 17 7-8)

Material: Holotype ♂, RUSSIA, Chelyabinsk Province, South Ural, Mt. Malyi Iremel, tundra, 24.VII.1985, V. Olschwang leg. Preserved in the SZMN. Paratype: 1 ♀, RUSSIA, Chelyabinsk Province, South Ural, Mt. Iremel, on a stony slope, 11.VII.1984, V. OLSCHWANG leg.

Diagnosis: Forewing length 17-18,5 mm. Most similar to *H. p. fridolini* (TORSTENIUS, 1971) (colour plate 17: 5-6) from Polar Scandinavia, within Norway, Sweden and Russian Khibiny Mts., but differs by exhibiting a well developed, continuous and well-defined angularly curved light basal band (sensu FERGUSON, 1985) on the upperside of the forewing; this band is much smaller in all of the specimens of *H. p. fridolini* (TORSTENIUS) studied and, even when this is reduced to a few fragments, they are vestigial and isolated from each other.

Holoarctia puengeleri sibirica **subspec. nov.** (colour plate 17: 9-10)

Material: Holotype ♂, RUSSIA, Sakha-Yakutia, Suntar-Khayata Range, the East Khandyga River upper flow, Km 232 of the road Khandyga-Magadan, the Baran'ya Mt., larva 16.VI.1991, imago 8.VII.1991, E. KAIMUK leg. Preserved in the SZMN. Paratypes: 1 ♂, RUSSIA, Sakha-Yakutia, Verkhoyansky Range, the Kele River headwaters, the Kokchin rivulet, 5 km S of the Lake Inderkei, 12.VII.1989, N. VINOKUROV leg.; 1 ♀, the same label, VII.1989, L. POPOVA leg.

Diagnosis: Forewing length 19 mm (♂, the holotype) – 20 mm (♀, the paratype). A light basal band on the upperside of the forewing (sensu FERGUSON, 1985) is well developed and continuous, but curved. The hind part of the dark band M_1 - M_2 is narrow, about 1.5-2 mm, and even if the light pattern is reduced it remains narrow. Such a wing pattern is characteristic to all specimens from North Siberia and Alaska (the photographs of the specimens from Alaska were received by the courtesy of Dr. K. PHILIP, Fairbanks, Alaska, USA), and are similar to the pattern of the nominotypical subspecies *H. p. puengeleri* (O. BANG-HAAS, 1927) which is distributed from East Sayans through the Stanovoi Mts. to the Sea of Okhotsk and is characterized by presence of white scales on the forewing veins, while in the new subspecies the veins not differ from the main wing pattern.

Grammia quenseli saura **subspec. nov.** (colour plate 18: 11)

Material: Holotype ♂ [KAZAKHSTAN], Saur Tarbagatai Mts., the Uidene River headwaters, 3.VII.1904, S.TSCHETWERIKOW. Preserved in the Zoological Museum, St.-Petersburg, Russia.

Diagnosis: Forewing length 15 mm. The black pattern on the forewings is noticeably enhanced, the whitish lines are narrow, slightly diffuse, there is a dot at the apex of the central cell, a longitudinal line between veins Cu₂ and A (the line being interrupted near its base), and a W-like submarginal line. The veins are also marked by light scales. The hindwings are entirely greyish-black, with few light markings.

♂ genitalia (fig. 5): Generally typical for the species: cucullus crescent-like with a wide base which narrows towards the apex. The apex of the sacculus is prominent and broadly triangular. The vesica is everted and, as in all *G. quenseli* subspecies, noticeably shorter than the aedeagus. The apical vesica lobe is covered by spiniculi almost throughout its entire surface.

Remarks: STAUDINGER (1881) also recorded a specimen of this species from Tarbagatai with black hindwings, so it seems likely that this is typical for the new subspecies. The other Asian subspecies, *Grammia quenseli liturata* (MÉNÉTRIÉS, 1859) (colour plate 18: 12), has the hindwings with the usual yellow ground colour; occasionally the black pattern is strongly enhanced, but in such specimens the light-colored patterning is fine and on the forewing it strongly contrasts against the dark background. The nominotypical subspecies (colour 18: 13) also has black hindwings, but the light patterning on the forewings neither contrasts nor is narrow. The ♂ genitalia (fig. 5) of the new subspecies is characterized by a pronounced apex to the cacculus, noticeably more prominent than in other subspecies (figs 6-8), and with widespread spiniculi throughout the whole surface of the apical vesica lobe.

Diacrisia sannio armeniaca **subspec. nov.** (colour plate 18: 14)

Material: Holotype ♂, ARMENIA, Daratshitshag, 15.VI.1929, B. TKATSHUKOV leg. Preserved in the SZMN. Paratypes: 25 ♂♂, the same label, 1-10.VI 1935-1939, B. TKATSHUKOV leg. (Zoological Museum of the Kijev State University, Ukraine).

Diagnosis: Forewing length 21 mm. Wing pattern identical to that of the nominotypical subspecies but the submarginal band on the hindwings is noticeably narrower.

♂ genitalia (fig. 9): This is the main differential characteristic of the subspecies. The costal process is very long and finger-like with a narrow base, while in specimens from all other regions it varies from being broadly triangular to a short finger-like process with a broad base (figs. 10-12).

Spilarcia lutea adzharia **subspec. nov.** (colour plate 18: 15-16)

Material: Holotype ♂, [GEORGIA, Adzharia], Tsikhiz-dziri, 17.VII.1928, A.Golotsyn leg. Preserved in the ZIN. Paratypes: 6 ♂♂, [GEORGIA], Transcauc. occ., Poti circuitu, 2., 14., 22.VIII.1939, 9.VIII.1940, G. Lvov leg. (ZIN); [Georgia], 2 ♂♂, Transcauc occ., Poti in urbi, 14, 22.VIII.1939, G.Lvov leg. (ZIN); 1 ♂, [Adzharia], Batumi, 12.VIII.1988 (CMWM); 5 ♂♂, [Adzharia], Tsikhiz-dziri, 11, 19, 23, 26.VII.1928, 5.VII.1929, A.GOLOTSYN leg. (ZIN); 1 ♂, [Adzharia], Mahindzhauri, near Batum, 12.VII.1912, anonymous leg. (ZIN); 1 ♂, Mahinzauri, 23.VII.1920, RJABOV coll. (ZIN); 3 ♂♂, 1 ♀, [Abkhasia], Sukhumi, 26.VII.1910, 9.VI.1934, 8.VIII.1937, 30.VI.1957, E. MILJANOVSKY leg. (ZIN);

5 ♂♂ TURKEY, Prov. Rize, 40° 53' N 40° 16' E, Schwarzmeergebiet, 1-8 km S of, 20-200 m, 31.VII.1984, 6.IX.1985, HERM. HACKER leg. (CMWM); 6 ♂♂, TURKEY, Pontus, İkizdere, [near Rize], 300 m, 1.VIII.1978, W. THOMAS leg. (CMWM).

Diagnosis: Forewing length 14-15 mm. All four wings are yellow, although the forewings are darker. The forewings have two black discal spots, the first being the largest, and three rows of dark dots. The subbasal one usually consists of three dots on the costa, in the hind vein of the cell and at vein A. The postdiscal row is the largest; beginning distally at the costa from the discal vein, the row goes around the cell, smoothly curves between veins M_2 and Cu_1 , once more curves at Cu_2 and reaches the hind edge two-thirds from the base. The submarginal row is irregular and is most visible from the apex of the wing to vein M_1 ; sometimes there are a few spots between M_1 and Cu_1 . The hindwings exhibit only a small diffuse spot on the discal vein.

♂ genitalia (fig. 13): Does not differ from the nominotypical subspecies.

Remarks: The new subspecies differs significantly from the nominotypical by the shape of the postdiscal row of spots on the forewings; this row is nearly straight and goes to the wing apex in *S. l. lutea* (HUFNAGEL, 1766) as well as in *S. l. japonica* (ROTHSCHILD, 1910) (the apical and subapical spots of the submarginal row and other spots of the postdiscal row forming a straight but complex band), while in the new subspecies the postdiscal row is separated from that at the submargin.

Lemyra murzinorum spec. nov. (Colour plate 18: 17)

Material: Holotype ♂, CHINA, Sichuan prov., valley 5 km N Wenchuan, 2000 m, 3-5.VII.2001, leg. S. MURZIN. Preserved in the Siberian ZSMN.

Diagnosis: Forewing length 18 mm. Wings light grey. The forewings have diffuse rows of blackish spots. There are two full rows of spots in the middle of the forewing, broken by light veins. An inner (medial) row is V-curved at the base of vein Cu_1 , while the postdiscal one adjoins to the former row behind the cell, then goes around the discus and reaches the costal margin near the bifurcation of veins M_1 and R_{2+3} . There are three additional isolated markings: a streak at the costa near the base of the wing, a spot on the fore part of discal vein, and a submarginal spot at the fore side of vein M_2 . The hindwings have a light rosy tint at the anal margin; there are one discal and three submarginal spots, one between veins M_1 and M_2 , and one large and one small at the tornus. The body is light grey, the patagiae margins and abdomen have a rosy tint. The legs are grey, but the external side of the femora and tibia, the middle tibia, and all of the tarsi, are black.

♂ genitalia (fig. 14): Uncus narrow, valva narrow, finger-like, with a broad triangular projection on its inner surface. Vesica with a single broad rectangular plate of cornuti.

Remarks: The new species has a unique wing pattern and is not represented in the *Lemyra* shown by THOMAS (1990). Only *L. bimaculata* (MOORE, 1879) (fig. 15) has two similar bands in the middle part of the forewings and a full row of submarginal spots on all four wings, while in the new species this row is represented by just three spots, one on the forewings and two on the hindwings. Moreover, the wing ground colour is yellowish in *L. bimaculata* (MOORE) and grey in the new species.

***Murzinoria* gen. nov.**

Type species: ***Murzinoria gracilis* spec. nov.**

Description: Head covered with pressed hairs. Palpi porrect. Eyes oval, naked, and situated on naked eye's sclerite. ♀ antennae serrate. Middle tibiae with one pair of spurs, hind tibiae with two pairs. R_{1+2} starts from the cell apex, as well as vein R_{3+5} ; other venation does not differ significantly from other Spilosomini. Tympanum with a small flattened enlargement.

Because the ♂ of the new taxon is unknown, it is only possible to characterize the new genus by its distinctive wing pattern. The dark pattern forms two medial and one postdiscal band, that at the antemedial being interrupted behind the cell. These transverse bands are crossed by an almost straight longitudinal band, which occupies the hind part of the cell and the space between M_3 and Cu_1 . The hind margin, as well as the apex, are also dark. The hindwings are bright orange with a dark discal band, submarginal spots, and marginal streaks. Thorax brown, patagia and tegulae with a light longitudinal band.

***Murzinoria gracilis* spec. nov.** (Colour plate 18: 18)

Material: Holotype ♀, CHINA, S. Gansu, Wenxian, 16.-18.VI.2002, leg. S. MURZIN, I. SHOKHIN. Preserved in the private collection of Prof. V. S. MURZIN (Moscow, Russia).

Description: Palpi white with a light brown apical section. Head light brown, the lower part of the frons white. Thorax brown with two white longitudinal stripes across the patagia and tegulae. Femora whitish, tibiae and tarsi light brown. Abdomen dorsally orange, ventrally light grey, with three rows of black oval spots on the dorsal surface and lateral sides; apical tergite without spots.

The brown pattern on the forewings predominates, so it easier to describe the positions of the white spots. There are four white spots on the costa; that at the antemedial is elongate, the postmedial is almost square with two distal teeth along the costa and R, the postdistal spot is rectangular with three distal teeth along the veins, and the subapical spot is also rectangular. Two almost triangular elongated spots are located behind the cell; they are connected by a narrow fascia at the cell's hind vein. There is an oblique transverse streak between veins Cu_1 and A, with a tooth-like hollow at the hind one-third. Two larger almost square submarginal spots are present between M_1 and M_3 , and behind vein Cu_1 respectively, and a narrower dash is present at the end of vein A. The hindwings are orange, with black spots and bands; the discal spot is fused with the hind half of a continuous postdiscal band; the anal veins are marked with black. There are four submarginal spots and a few small marginal spots; the latter are visible at the apex and between veins M_3 - Cu_1 .

Remarks: Due to its small size and similar wing pattern, the new genus and species belongs to the generic group *Lithosartia* DANIEL, 1954 (with a separate subgenus *Ocnogynodes* DUBATOLOV, 1987, which is characterized by the juxta being transversally elongated, while in the nominotypical monotypic subgenus it is longitudinally elongated) - *Simowatsonia* DUBATOLOV, 1996 (DUBATOLOV, 1996, 2002). Both of these genera have a dark streak along the forewing of the cubital vein (the hind vein of the central cell) and a similar disposition of spots between veins Cu and A. However, the stripe along the cubital vein is crossed by a white Y- or V-shaped spot in the outer part of the wing in *Simowatsonia* and *Ocnogynodes*, or by a straight longitudinal line in *Lithosartia* s. str., while in the new genus this dark line is continuous and reaches the

outer margin between veins M_3 and Cu_1 . Moreover, the presence of a narrow medial band on the hindwings of *Murzinoria* is not a common feature within *Lithosartia-Sinowatsonia*. Nevertheless, a study of the male genitalia is necessary to determine the exact taxonomic position of this genus, and its current position is only tentative.

Acknowledgements: The author is very much obliged to Prof. V. S. MURZIN (Moscow, Russia) for allowing access to his collection, to Mr. TH. WITT and Dr. W. SPEIDEL (München, Germany) for photographs of many Siberian *Grammia quenseli* and Turkish *Spilartia lutea* specimens from the Museum WITT, and to Dr. O. KOSTERIN (Novosibirsk, Russia) and Mr. COLIN PRATT for correcting the English language of the article.

References

- BANG-HAAS, O. (1927): Horae Macrolepidopterologie regionis palaearcticae 1: 128 S., 10 Pl., Dresden.
- BOISDUVAL, J. (1829): Europaeorum Lepidopterorum Index Methodicus, Parisiis.
- DANIEL, F. (1954): Beiträge zur Kenntnis der Arctiidae Ostasiens unter besonderer Berücksichtigung der Ausbeuten von Dr. h. c. H. HÖNE aus diesem Gebiet (Lep.-Het.) III. Teil: Lithosiinae. – Bonner zool. Beitr. 4 (1-2): 89-138, Taf. III, Bonn.
- DUBATOLOV, V. V. (1987): [On systematics of the genus *Micrarctia* SEITZ, s. lat.]. – Nasekomye, kleshchi i gel'minty [Insects, mites and helminths], 30-47, Novosibirsk. In Russian.
- DUBATOLOV, V. V. (1996): *Sinowatsonia*, a new genus of Arctiidae from Tibet (China) (on the systematics of the genus *Micrarctia* SEITZ s.l., Part 2). – Neue Ent. Nachr. 37: 5-8, 88-89, Marktleuthen.
- DUBATOLOV, V. V. (2002): Some notes on the systematics of the genus *Lithosartia* DANIEL, 1954 (Lepidoptera, Arctiidae). – Atalanta 33 (1/2): 173-176, 236-237 (pl. VII), Marktleuthen.
- FERGUSON, D. C. (1985): Contributions toward reclassification of the world genera of the tribe Arctiini, Part 1, Introduction and a revision of the *Neoarctia-Grammia* group (Lepidoptera: Arctiidae; Arctiinae). – Entomography. An Annual Review for Biosystematics 3: 181-275, Sacramento, California.
- FREINA, J. J., DE (1997): Nouvelles Arctiides de la faune paléarctique asiatique (Lepidoptera, Arctiidae, Arctiinae). – Linneana belgica 16 (1): 49-60, Bruxelles.
- HUFNAGEL, J. S. (1766) Berlinisches Magazin, oder gesammelte Schriften und Nachrichten für die Liebhaber der Erznenwissenschaft, Naturgeschichte und der angenehmen Wissenschaften überhaupt, Band 2. – Berlin.
- LINNAEUS, C. (1758): [III. Lepidoptera]. – p.458-542. – LINNAEUS, C. Systema Naturae per Regna Tria Naturae, Secundum Classes, Ordines, Genera, Species, cum characteribus, differentiis, synonymis, locis, Tomus I. Editio Decima, Reformata. Holmiae, 824 p.
- MÉNÉTRIÈS, E. (1859): 32. Sur quelques Lépidoptères du gouvernement de Jakoutsk, par M. Ménétrès. (Lu le 18 mars 1859.). – Bulletin de la classe physico-mathématique de l'Académie Impériale des Sciences de St.-Petersbourg 17 (32): 494-500, St.-Petersbourg.
- MOORE, F. (1879): Descriptions of new genera and species of Asiatic Lepidoptera Heterocera. – Proc. Sci. Meetings Zool. Soc. London 1879: 387-417, pl. XXXII-XXXIV, London.
- PAYKULL, G. (1793): X. Beskrivelse over 5 Arter nye Nat-Sommerfulge. – Skrivt. Naturh. Selsk. Kjøbenhavn 2: 97-102, t. 2, Kjøbenhavn.
- OBERTHÜR, CH. (1911) Notes pour servir à établir la Faune Française et Algérienne des Lépidoptères (Suite). Heterocera. II. – Chlonides (Arctiadae). – Ét. Léop. comp. 5 (1): 11-182, pl. 66, 71, 80-82, Rennes.

- ROTHSCHILD, W. (1910): Catalogue of the Arctianae in the Tring museum, with notes and descriptions of new species. – Novit. Zool. **17** (1): 1-85, (2): 113-188, pl. XI-XIV, London.
- SALDAITIS, A. & P. IVINSKIS (2001): Some notes on the Palearctic species of the genus *Grammia* RAMBUR, 1866 (Lepidoptera, Arctiidae) with the description of a new species, *Grammia zamolodchikovi*, sp. n. – Helios **2**: 131-141, pl. 13, Moscow.
- STAUDINGER, O. (1881): Beitrag zur Lepidopterenfauna Central-Asiens. – Stettiner Ent. Z. **42**: 253-300, 393-424, Stettin.
- Thomas W. (1990): Die Gattung *Lemyra* (Lepidoptera, Arctiidae). – Nachr. Ent. Ver. Apollo. Supplementum **9**: 1-83, Frankfurt am Main.
- TORSTENIUS, S. (1971): *Orodemnias cervini* FALLOU ssp. *fridolini* n.ssp. (Lepidoptera, Arctiidae). – Ent. Tidskr. **92** (3-4): 173-177, Stockholm.

Address of the author

DR. VLADIMIR V. DUBATOLOV
Siberian Zoological Museum
Institute of Animal Systematics and Ecology
Siberian Branch of Russian Academy of Sciences
Frunze street ,11
630091, Novosibirsk, 91, Russia

Explanation of the figures 1-15

Fig. 1: ♂ genitalia (general view and aedeagus) of *Epicallia villica transuralica* **subspec. nov.**, holotype, Russia, Kurgan Province, 5 km SW from Kurgan, Ketovo, by light, 23.50 PM -2 AM, 14.VI.1983, N. UTKIN leg. **Fig. 2:** ♂ genitalia of *Epicallia villica* (LINNAEUS, 1758), Russia, Belgorod Province, Borisovka, VII.1990, anonymous student leg. **Fig. 3:** ♂ genitalia of *Epicallia villica angelica* (BOISDUVAL, 1829), Spain, Madrid, Miraflores, 3.VI.1990, M. FRISUELOS leg. **Fig. 4:** ♂ genitalia of *Epicallia villica britannica* (OBERTHÜR, 1911), U.K., England, Purley, S'y, 3, 24.VI.1933, W. H. JACKSON leg. **Fig. 5:** ♂ genitalia of *Grammia quenseli saura* **subspec. nov.**, holotype, Kazakhstan, Saur Tarbagatai Mts., river Uidene headwater, 3.VII.1904, S. TSCHETWERIKOW. **Fig. 6:** ♂ genitalia of *Grammia quenseli lituata* (MÉNÉTRIÈS, 1859), “Jakutsk” [Russia, Khabarovsk Prov., Kaikhan River, left tributary of the Uchur River, 56-57° N, 132-133° E, 10.VI, PAWLOWSKY leg.]. **Fig. 7:** ♂ genitalia of *Grammia quenseli zamolodchikovi* SALDAITIS ET IVINSKIS, 2001, Russia, Chukotka Sea, Wrangel Is., s.e. part, tundra, 25.VII.1933, A. MINEEV leg. **Fig. 8:** ♂ genitalia of *Grammia quenseli quenseli* (PAYKULL, 1793), ♂, Finland, Lapponia, BLANK [leg.]. **Fig. 9:** ♂ genitalia of *Diacrisia sannio armeniaca* **subspec. nov.**, holotype, Armenia, Daratshitshag, 15.VI.1929, B. TKATSHUKOV leg. **Fig. 10:** ♂ genitalia of *Diacrisia sannio* (LINNAEUS, 1758), Russia, Caucasus sept., Teberda, Khatipara Major, middle part of a mountain slope, 21.VII.1997, A. G. BUGROV leg. **Fig. 11:** ♂ genitalia of *Diacrisia sannio* (LINNAEUS, 1758), Crimea, Crimean Nature Reserve, Bolshaya Polyana, 17.VI.1954, YU. P. KORSHUNOV leg. **Fig. 12:** ♂ genitalia of *Diacrisia sannio* (LINNAEUS, 1758), Finland, N: Tamisaari, Gullö: 665:29, Edesbacka, 24.V.1988, V. V. DUBATOLOV, K. MIKKOLA leg. **Fig. 13:** ♂ genitalia of *Spilarctia lutea adzharia* **subspec. nov.**, paratype, Georgia, Transcauc. occ., Poti circuitu, 2.VIII.1939, G. LVOV leg. **Fig. 14:** ♂ genitalia of *Lemyra murzinorum* **spec. nov.**, holotype, China, Sichuan prov., valley 5 km N Wenchuan, 2000 m, 3.-5.VII.2001, leg. S. MURZIN. **Fig. 15:** *Lemyra bimaculata* (MOORE, 1879), ♂, Indien, Bhimtal (ex: THOMAS, 1990).

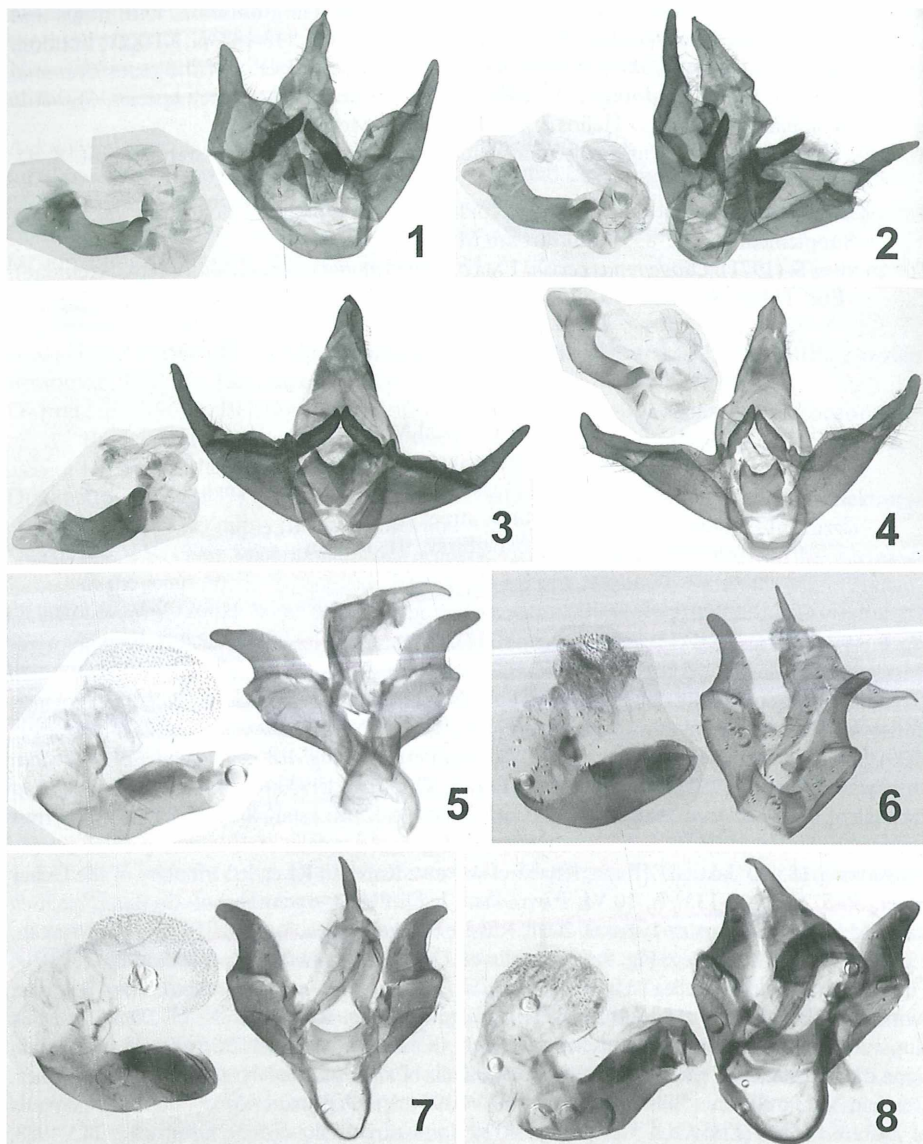


Fig. 1: *Epicallia villica transuralica* subsp. nov., holotype. **Fig. 2:** *Epicallia villica villica* (LINNAEUS, 1758). **Fig. 3:** *Epicallia villica angelica* (BOISDUVAL, 1829). **Fig. 4:** *Epicallia villica britannica* (OBERTHÜR, 1911). **Fig. 5:** *Grammia quenseli saura* subsp. nov., holotype. **Fig. 6:** *Grammia quenseli liturata* (MÉNÉTRIÈS, 1859). **Fig. 7:** *Grammia quenseli zamolodchikovi* SALDAITIS ET IVINSKIS, 2001. **Fig. 8:** *Grammia quenseli quenseli* (PAYKULL, 1793).

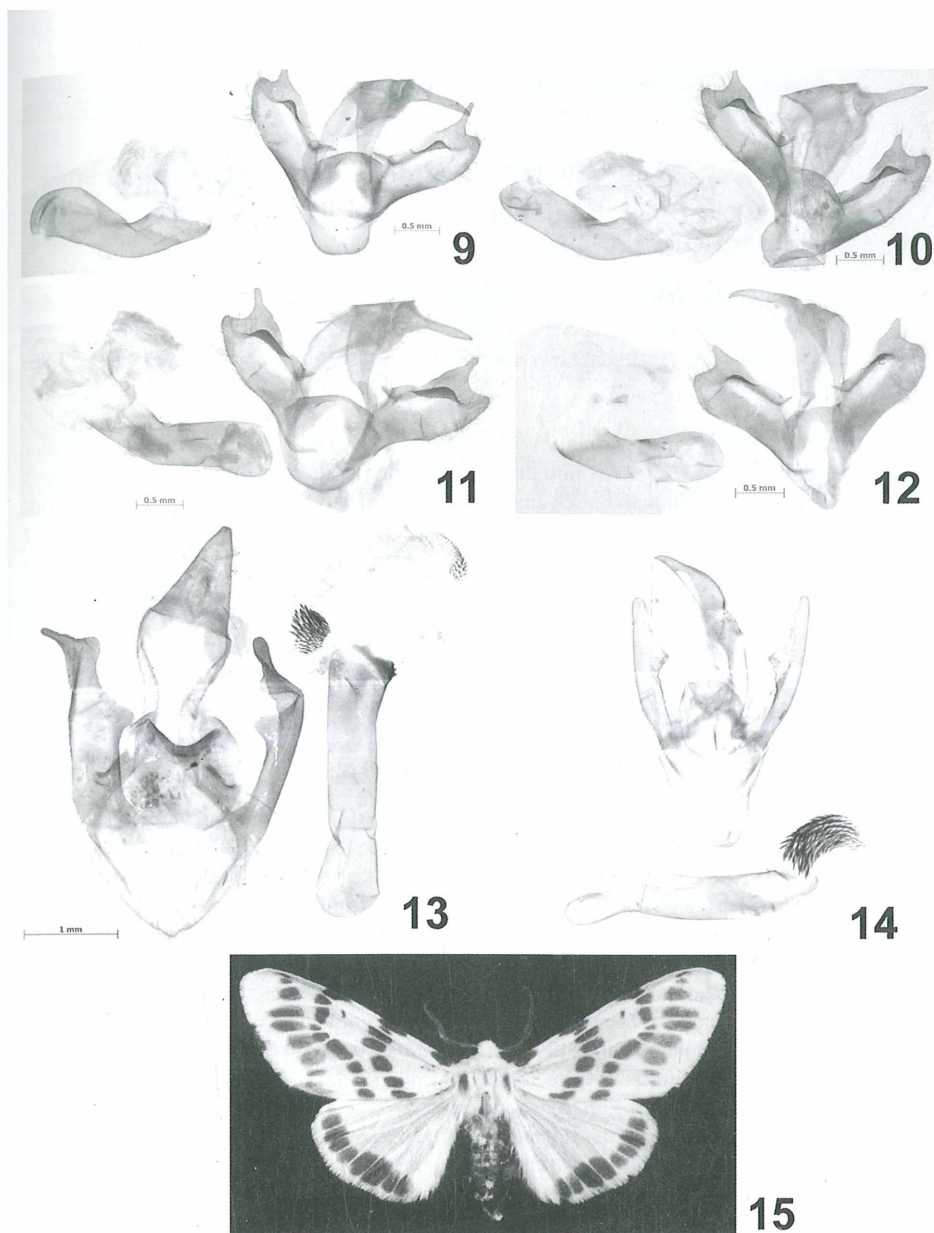
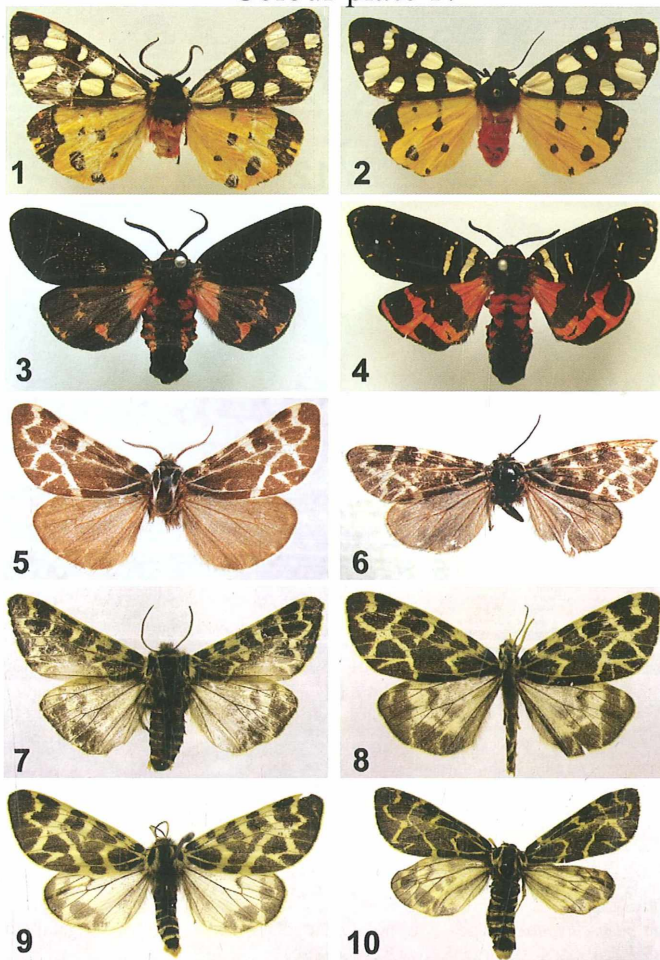


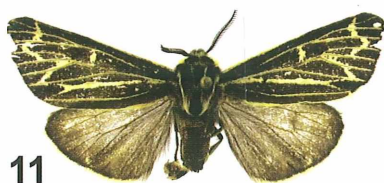
Fig. 9: ♂ genitalia of *Diacrisia sannio armeniaca* subsp. nov., holotype. **Fig. 10:** ♂ genitalia of *Diacrisia sannio* (LINNAEUS, 1758). **Fig. 11:** ♂ genitalia of *Diacrisia sannio* (LINNAEUS, 1758). **Fig. 12:** ♂ genitalia of *Diacrisia sannio* (LINNAEUS, 1758). **Fig. 13:** ♂ genitalia of *Spilarctia lutea adzhavica* subsp. nov., paratype. **Fig. 14:** ♂ genitalia of *Lemyra murzinorum* spec. nov., holotype. **Fig. 15:** *Lemyra bimaculata* (MOORE, 1879) (ex: THOMAS, 1990).

Colour plate 17



- Fig. 1, 2: *Epicalia villica transuralica* subsp. nov., holotype ♂ (fig.1), Russia, Kurgan Province, 5 km SW from Kurgan, Ketovo, by light, 23.50 PM-2 AM, 14.VI.1983, (fig.2: paratype ♀, 7.VII.1985) N. UTKIN leg.
- Fig. 3, 4: *Eucharia festiva karabagha* subsp. nov., fig. 4: holotype ♀, fig. 5: paratype ♀, Azerbaijan/Armenia disputed territory, Karabagh, Jurdi 4 (ex coll. Greate Duke NIKOLAI MIKHAILOVICH).
- Fig. 5: *Holoarctia puengeleri fridolini* (TORSTENIUS, 1971), ♂, Russia, Murmansk Provinse, Kolar Peninsula, Khibiny Mts., tundra zone, 23.VII.1926, S. TSCHETWERIKOW leg.
- Fig. 6: *Holoarctia puengeleri fridolini* (TORSTENIUS 1971), ♀, Russia, Murmansk Provinse, Kolar Peninsula, Khibiny Mts., Chaska-chorr, VIII.1931, FRIDOLIN leg.
- Fig. 7, 8: *Holoarctia puengeleri iremelica* subsp. nov., fig.7: holotype ♂, Russia, Chelyabinsk Province, South Ural, Mt. Malyi Iremel, tundra, 24.VII.1985 (fig. 8: paratype ♀, 11.VII.1984), V. OLSCHWANG leg.
- Fig. 9: *Holoarctia puengeleri sibirica* subsp. nov., holotype ♂, Russia, Sakha-Yakutia, Suntar-Khayata Range, the East Khandyga River upper flow, Km 232 of the road Khandyga-Magadan, Mt. Baran'ya, larva 16.VI.1991, imago 8.VII.1991, E. KAIMUK leg.
- Fig. 10: *Holoarctia puengeleri sibirica* subsp. nov., paratype ♀, Russia, Sakha-Yakutia, Verkhoyansky Range, the Kele River headwater, the Kokchin rivulet, 5 km S of the Lake Inderkei, VII.1989, L. POPOVA leg.

Color plate 18



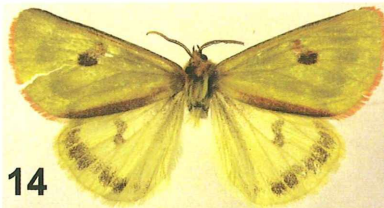
11



12



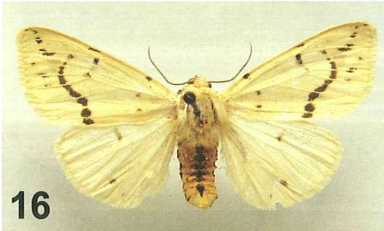
13



14



15



16



17



18

Fig. 11: *Grammia quenseli saura* **subspec. nov.**, holotype ♂, Kazakhstan, Saur Tarbagatai Mts., river Uidene headwater, 3.VII.1904, S. TSCHETWERIKOW.

Fig. 12: *Grammia quenseli liturata* (MÉNÉTRIÈS, 1859), ♂, Russia, Sakha-Yakutia, Suntar-Khayata Range, river East Khandyga upper flow, Km 227 of the road Khandyga-Magadan, Left Otmool'ye, 26.VI.1986, L. POPOVA leg.

Fig. 13: *Grammia quenseli quenseli* (PAYKULL, 1793), ♂, Finland, Lapponia, BLANK [leg.]

Fig. 14: *Diacrisia sannio armeniaca* **subspec. nov.**, holotype ♂, Armenia, Daratshitshag, 15.VI.1929, B. TKATSHUKOV leg.

Fig. 15: *Spilarctia lutea adzhariaca* **subspec. nov.**, holotype ♂, [Georgia, Adzharia], Tsikhiz-dziri, 17.VII.1928, A. GOLITSYN leg.

Fig. 16: *Spilarctia lutea adzhariaca* **subspec. nov.**, paratype ♀, [Abkhazia], Sukhimi, 8.VIII.1937, E. MILJANOVSKY leg.

Fig. 17: *Lemyra murzinorum* **spec. nov.**, holotype ♂, China, Sichuan prov., valley 5 km N Wenchuan, 2000 m, 3.-5.VII.2001, leg. S. MURZIN.

Fig. 18: *Murzinoria gracilis* **gen. et spec. nov.**, holotype ♀, China, S. Gansu, Wenxian, 16.-18.VI.2002, leg. S. MURZIN, I. SHOKHIN.